

SYREYSHCHIKOV, Vl. (g. Sverdlovsk)

~~Way to victory.~~ Za rul. 15 no.3:4-5 Mr '57.  
(Motorcycle racing)

(MLRA 10:5)

BRONSHTEYN, A.P.; LOPAREV, V.G.; SYREYSHCHIKOV, V.V.; ZHARNOVICH, A.M.

Production of ammonium sulfate of prescribed quality. Koks i  
khim. no.7:42-44 J1 '61. (MIRA 14:9)

1. Chelyabinskiy metallurgicheskiy zavod.  
(Chelyabinsk--Ammonium sulfate)

15(2)

SOV/131-59-12-1/15

AUTHORS:

Mamykin, P. S., Syreyshchikov, Yu. D.

TITLE:

Manufacture of Forsterite Products From Asbestos Scraps

PERIODICAL:

Ogneupory, 1959, Nr 12, pp 529-538 (USSR)

ABSTRACT:

In the present paper the experiment of replacing the process of briquetting asbestos scraps by granulation is described. Granulation and chemical composition of five kinds of scraps may be seen from tables 1 and 2. Figure 1 shows thermograms of asbestos scraps of Kurnakov. Asbestos scraps exhibit less refractoriness than serpentinites of Bedenskoye, Bazhenovskoye, and Belorechenskoye deposits. Table 3 indicates the refractoriness of scraps in dependence on magnesite powder addition. Further the granulation of furnace charges with magnesite addition is described and table 4 lists the chemical composition of utilized magnesites. Figure 2 shows granules obtained at dimensions of 7 to 15 mm. The granule- and briquette properties after burning are indicated in table 5. Samples were made from granulated and briquetted clinker the composition and main characteristics of which may be seen from table 6. Further the possibility of manufacturing Periklas-Forsterite products is

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## Manufacture of Forsterite Products From Asbestos Scraps

investigated the properties of which are indicated in table 7. In the "Magnezit" works an experimental set of Forsterite- and Periklas-Forsterite products were manufactured according to the briquetting method and described in detail. Their chemical composition and properties are shown by table 8 and their microstructure by figures 3 and 4. The Forsterite- and Periklas-Forsterite bricks were tested in the checkerboard brickwork of air- and gas generators of an open-hearth furnace of the Nizhne Tagil'skiy metallurgicheskiy kombinat (Nizhniy Tagil Metallurgical Kombinat) and it was found that their composition and properties changed only inconsiderably after use (Table 9). Only Forsterite bricks were subjected to destruction in a high degree. Petrographic analyses of these bricks were carried out by T. F. Raychenko; Figures 5 and 6 show their microstructure. Figures 7 and 8 show the microstructure of Forsterite bricks from asbestos scraps and unburned dunite. In conclusion the authors state that asbestos scraps may be used as raw material for the manufacture of Forsterite products with a porosity below 20%. By addition of 30% magnesite all properties of these products are improved. Granulating the finely ground charge may replace the briquetting of the charge without

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SOV/131-59-12-1/15

Manufacture of Forsterite Products From Asbestos Scraps

involving a reduction in quality. Thus the use of serpentinites, talcs and other similar rocks for the manufacture of Forsterite products is made possible. There are 10 figures, 9 tables, and 6 Soviet references. ✓

ASSOCIATION: Vostochnyy institut ogneporov (Eastern Institute of Refrac-  
tories)

Card 3/3

KHOROSHAVIN, L.B.; SYREYSHCHIKOV, Yu.D.; SKOROKHOD, S.D.

Effect of the composition of the metallurgical powder mix on the stability of sidewalls and hearth bottoms in electric arc furnaces. (MIRA 18:1)  
Ogneupory 29 no.6:276-280 '64.

1. Vostochnyy institut ogneuporov (for Khoroshavin, Syreyschikov).
2. Zavod "Elektrostal'" (for Skorokhod).

SYREYSHCHIKOV, Yu.P., inzh.

Compaction of the ballast during vibration. Vest. TSNII MPS  
22 no.7:59-63 '63. (MIRA 16:12)

SYREYSHCHIKOV, Yu.P., inzh.

Effect of vibration conditions on ballast tamping. Put' put.khoz.  
8 no.2:36-37 '64. (MIRA 17:3)

STRELOV, K.K.; MAMYKIN, P.S.; Primali uchastiye: BAS'YAS, I.P.;  
BICHURINA, A.A.; BRON, V.A.; VECHER, N.A.; VOROB'YEVA, K.V.;  
D'YACHKOVA, Z.S.; D'YACHKOV, P.N.; DVORKIND, M.M.;  
IGNATOVA, T.S.; KAYBICHEVA, M.N.; KELAREV, N.V.;  
KOSOLAPOV, Ye.F.; MAR'YEVICH, N.I.; MIKHAYLOV, Yu.F.;  
SEMKINA, N.V.; STARTSEV, D.A.; SYREYSHCHIKOV, Yu.Ye.;  
TARNOVSKIY, G.I.; FLYAGIN, V.G.; FREYDENBERG, A.S.;  
KHOROSHAVIN, L.B.; CHUBUKOV, M.F.; SHVARTSMAN, I.Sh.;  
SHCHETNIKOVA, I.L.

Institutes and enterprises. Ogneupory 27 no.11:499-501  
'62. (MIRA 15:11)

1. Vostochnyy institut ogneuporov (for Strelov). 2. Ural'skiy  
politekhniicheskiy institut im. S.M. Kirova (for Mamykin).  
(Refractory materials--Research)

SYREYSHCHIKOVA, V. I.

137-58-1-1689

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 230 (USSR)

AUTHORS: Bolotov, I. Ye., Syreyshchikova, V. I., Guterman, S. G.

TITLE: The Mechanism of Formation of Spheroidal Graphite Crystals  
in Iron (O mekhanizme obrazovaniya sharovidnykh kristallov  
grafita v chugune)

PERIODICAL: V sb.: Rost kristallov. Moscow, AN SSSR, 1957, pp 205-211

ABSTRACT: Bibliographic entry

1. Iron 2. Graphite crystals--~~Formation~~

Card 1/1

AUTHOR: Bolotov, I.Ye., Syreysnchikova, V.I. and Guterman, S.G.

TITLE: On the mechanism of formation of spheroidal graphite in<sup>125</sup>  
cast iron. (O mekhanisme obrazovaniya sharovidnogo  
grafita v chugunakh.)

PERIODICAL: "Fizika Metallov i Metallovedenie" (Physics of Metals and  
Metallurgy), 1957, Vol.IV, No.1 (10), pp.177-180 (U.S.S.R.)

ABSTRACT: The aim of the experimental work was to elucidate whether  
the formation of spheroidal graphite in the case of treatment  
of the cast iron with an inoculation agent is due to the  
elimination of sulphur and oxygen from the melt. If this is  
the case, iron obtained from pure starting materials should  
develop spheroidal graphite without any inoculation. For  
this purpose, the shape of the graphite was investigated in  
iron produced in vacuum from pure raw materials. For eluci-  
dating the mechanism of the effect of sulphur radio-active  
S<sup>32</sup> has been included. The silicon which was added to the  
melt to an extent of 3% contained 0.17% Al, 0.41% Fe, 0.15% Ca  
whilst the graphitised carbon contained 0.015% S, the iron  
was molten at 1 400 °C in a graphite crucible at a pressure  
of  $2 \times 10^{-5}$  mm Hg and cooled in vacuum. It was found that  
formation of lamellar graphite is due to the presence of  
sulphur, and apparently also due to the presence of oxygen in  
the iron, and it is concluded therefrom that the formation  
of spheroidal graphite as a result of inoculation (with

On the mechanism of formation of spheroidal graphite<sup>125</sup> in  
cast iron. (Cont.)

magnesium for instance) is due to the purification of the melt from these admixtures and combining with them into insoluble chemical compounds (MgS, MgO); the purification may also be due to the flotation process which accompanied the passage of bubbles of vapours of the inoculation agent through the melt. It is also possible that the inoculation agent brings about a super-cooling of the iron and by absorbing on the graphite makes the movement of carbon atoms to the growing graphite crystal difficult. 4 micro-photographs, 14 references, 6 of which are Russian.

Ural Research Institute of Ferrous  
Metals.

Recd. May 21, 1956

18(3), 18(7), 24(2)

SOV/126-7-2-32/39

AUTHORS: Levitin, V. V. and Syreyshchikova, V. I.

TITLE: The Influence of Boron on the Nature of Carbide  
Separation in Austenitic Steels During Tempering  
(O vliyanii bora na kharakter vydeleniya karbidov  
v austenitnoy stali pri otpuske)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2,  
pp 308-310 (USSR)

ABSTRACT: Heating of austenitic stainless steels containing carbon in solid solution up to temperatures of 500-800°C causes formation of chromium carbide in the grain boundaries, as a result of which the steel ceases to be resistant to intercrystalline corrosion. The authors investigated the influence of small additions of boron on the nature of the separation of the carbide phase during tempering and on the tendency of chromium manganese nickel steel containing II to intercrystalline corrosion. The above steel has been studied in the work of Levitin et. al. (Ref 2). Ingots to which various quantities of boron have been added were melted in a high frequency furnace and forged into rods. The specimens for metallographic investigation and for

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intercrystalline testing made from the rods were heated to various temperatures in the range 950-1250°C, held for one hour and quenched in water. Tempering was carried out under the usual conditions (Ref 3), for two hours at 650°C. The tendency to intercrystalline corrosion of cylindrical specimens of 3.4 mm diameter was determined after boiling them in a standard solution (Ref 3) by the loss of metallic sound on falling and by the increase in electric resistance. The investigation has shown that boron slows down the formation of the carbide network along the austenitic grain boundaries. In steels containing no boron, tempering for 2 hours at 650°C causes formation of a continuous chain of carbides along the grain boundaries (Fig 1a). In steel containing 0.004% boron, the carbide phase separates in the form of fragments; the grain boundaries remain pure along considerable lengths (Fig 1b). At concentrations lower than 0.003% or above 0.010% boron has no influence on the formation of the carbide network. A retardation of the decomposition of the solid solution in the boundaries under the influence

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of boron is observed when heating for quenching is carried out to temperatures of 1075-1150° C. At lower or higher quenching temperatures, the carbide network formation occurs in the same way as in steel without boron addition. The influence of boron is the greater the lower the carbon content of the steel: in 0.06% C steel boron practically completely prevents formation of carbides that can be seen under the optical microscope; at a carbon content of 0.14%, the influence of boron becomes negligible. From the Table it can be seen that steels containing optimum boron contents resist intercrystalline corrosion tests according to GOST 6032-51. The results of the investigation obtained agree with V. I. Arkharov's theory of preferential distribution of impurities in the grain boundaries as a result of the tendency of the alloy to lower its excess surface energy (Ref 4 and others). According to V. I. Arkharov (Ref 5), the mechanism of the influence of boron on the ability of structural steels to be tempered consists in the

Card 3/5 fact that the enrichment of intercrystalline boundaries

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with boron leads to a decrease in the distortion of the crystal lattice, as a result of which the work for the formation of critical nucleation of the separating phase increases. This explanation is applicable apparently also to the effect shown in this work. The decrease in diffusion rate in the grain boundary zone (Ref 6), in this case of carbon under the influence of boron, and the ejection of carbon from the boundary zones can also be factors influencing the retardation of carbide particle formation. Let us note that boron retards the separation of excess phases from austenite of different composition (carbon and alloy steels, austenitic steel). The surface activity of boron is apparent in nickel base alloys (Ref 7) and in iron (Ref 8). Among the number of factors influencing intercrystalline adsorption (Ref 9), in the case of boron the determining factor is a geometrical one. The atomic radius of boron is smaller than the radius of atoms forming a substitutional solid solution in the alloys listed, but is

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greater than the radius of atoms going into solution interstitially. This is bound to lead to a greater solubility of boron in distorted grain boundary zones as compared with the solubility in the grain bodies. It appears that in the construction of intercrystalline boundaries boron atoms play a smaller role as "structure material" than metallic atoms. There are 1 figure, 1 table and 9 references, 8 of which are Soviet, 1 English.

(Note: This is a complete translation except for the figure caption and table)

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy institut  
chernykh metallov (Ural Scientific Research Institute  
of Ferrous Metals)

SUBMITTED: May 12, 1958

Card 5/5

*Syreyschikova, V.I.*

81878

18.7100

18.1130

S/129/60/000/08/005/009

E073/E135

AUTHORS: Levitin, V.V., and Syreyschikova, V.I. (Engineers)  
TITLE: Rejection of Carbides<sup>1</sup> at the Grain Boundaries<sup>2</sup> during Tempering of Austenitic Steel<sup>3</sup>

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No 8, pp 20-25

TEXT: The work described in this paper was devoted to studying the influence of small additions of various elements on the character of rejection of carbides during tempering of austenitic stainless steels and the stability of such steels against inter-crystallite corrosion. For the investigation a nitrogen-containing, chromium-manganese-nickel steel was chosen (0.09-0.12% C; 16-18.6% Cr; 3.3-5.5% Ni; 6-9.5% Mn; 0.12-0.35% N; max 0.6% Si, max 0.04% P, max 0.03% S. After quenching from 1050 °C the mechanical properties were as follows:  $\sigma_s = 34-39 \text{ kg/mm}^2$ ;  $\sigma_b = 73-79 \text{ kg/mm}^2$ ;  $\delta = 47-53\%$ ;  $a_k = 24 \text{ kgm/cm}^2$ .

The additions used for preventing rejection of carbides at the grain boundaries and for preventing the tendency to inter-crystallite corrosion can be subdivided into the following two groups:

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admxtures which combine with carbon to form strong carbides; admxtures which reduce the excess energy of the inter-crystallite transient zone. As elements of the first group the authors chose Mo, Nb and Ta; as elements of the second group they chose Be, Ca, Ag, Ce and B. Grade A electrical iron, nitrided ferro-chromium, low-carbon ferro-chromium and metallic manganese were chosen as charge materials for the laboratory high-pressure furnace, whilst carbide-forming elements were introduced into the steel in quantities which are required for carbide formation. Other additions were introduced in quantities between thousandths and a tenth of one percent. The ingots were machined off to a depth of 3-5 mm and forged into rods from which specimens were cut out. Specimens for micro investigations were heated in a salt bath to temperatures between 950 and 1250 °C in steps of 50 °C for one hour and then quenched in water. The tempering was by heating for two hours at 650 °C. In some cases additional tempering for 15 minutes and two hours was carried out at 700 and 750 °C. The quenching temperature at which the smallest quantity of carbides separated at

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the boundaries was determined metallographically. Following that, specimens were treated according to this regime and used for determining the tendency to inter-crystallite corrosion, which was determined after boiling of the specimens in a standard solution and inspecting the crack formation caused by subsequent bending, and by measuring the increase in electrical resistance. In some of the steels the carbide phase was separated electrolytically in a saturated solution of sodium chloride which was acidified by hydrochloric acid. The thus produced precipitates were subjected to X-ray analysis using cobalt radiation. Six microstructure photographs of various steels (without and with additions) after quenching and tempering at 650 °C for a duration of 2 hours are reproduced on p 21. The results of investigations of the tendency to develop inter-crystallite corrosion after quenching and tempering at 650 °C are entered in a Table on p 23 for steels from 26 heats. On the basis of the obtained results the following conclusions are arrived at. Rejection of the carbides during tempering of the investigated Card 3/4 ✓

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E073/E135

# Rejection of Carbides at the Grain Boundaries during Tempering of Austenitic Steel

steels can be prevented by reducing the carbon content from 0.09-0.12% to 0.04% and also by introducing molybdenum, niobium and tantalum. The resistance to inter-crystallite corrosion during tests in a standard solution is maintained in low carbon steel and also in steel containing tantalum to an extent of 20 times the carbon content. Addition of tungsten and also an increase in the niobium content in excess of 10 times the carbon content leads to ferrite formation. Beryllium accelerates the rejection of carbides during tempering of hardened steel, whilst calcium, silver and cerium do not influence this process within the range of investigated quantities. Boron (0.003-0.10%) prevents the formation of a carbide network in the case of tempering at 650 °C, but assists such formation at more elevated temperatures. The influence of boron depends on the quenching temperature and on the carbon content of the steel.

There are 1 figure, 1 table and 12 references: 9 Soviet, 2 English and 1 German.

ASSOCIATION: Ural'skiy institut chernykh metallov  
(Ural Institute for Ferrous Metals)

Card 4/4

X

18.1130  
S/081/62/000/001/034/067  
B102/B101

AUTHORS:

Levitin, V. V., Syreyshchikova, V. I.

TITLE:

Methods to prevent intercrystalline corrosion in stainless austenitic steels containing nitrogen

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 1, 1962, 307, abstract 11193 (Byul. nauchno-tekhn. inform. Ural'skiy n.-i. in-t chern. metallov, no. 8, 1960, 62-67)

TEXT: Methods of preventing the tendency to intercrystalline corrosion in N<sub>2</sub>-containing austenitic steels were investigated. These are based on reducing the C content in the steel and on the adoption of carbide developers which do not remove N<sub>2</sub> from the solid solution. It was found that the separation of Cr carbides in the drawing of austenitic Cr-Mn-Ni-steels which contain N<sub>2</sub> can be prevented by reducing the C content in such steels from 0.09-0.12 to 0.04% or by adding Mo, Nb or Ta to them.  
[Abstracter's note: Complete translation.]

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36597

S/126/62/013/003/009/023  
E091/E135

18.451

AUTHORS:

Syreyshchikova, V.I., Levitin, V.V., and  
Farafonov, V.K.

TITLE:

On the influence of grain size of austenitic steels  
on their refractoriness and nature of fracture in  
creep

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.3,  
1962, 394-398

TEXT: The influence of grain size and the properties of  
grains of varying dimensions in forgings of steel 3M612 K  
(EI612K), with respect to refractoriness and nature of cracks at  
650 and 700 °C was studied. The chemical composition of this  
steel (in %) is as follows: 0.09 C; 0.34 Si; 1.19 Mn;  
15.0 Cr; 36.5 Ni; 1.5 Ti; 3.2 W; 4.1 Co; 0.012 B; 0.013 P;  
0.004 S. An ingot 2.1 tons in weight was forged into a rod of  
300 mm diameter. The forging was cut into longitudinal templets  
of 20 mm thickness. Specimen billets were cut from peripheral  
portions of the latter, in order to exclude the influence of  
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On the influence of grain size ...

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E091/E135

defects in the central zone. The templets were soaked at 1200 °C for 2 hours and quenched. They were then ground on two opposite sides and etched in order to expose the nature and size distribution of the grains. Etching was carried out at room temperature in a solution consisting of a mixture of 20 weight parts of hydrochloric, 10 parts of nitric acid, and one part of potassium dichromate. The average grain size on the surface of billets of 20 x 20 mm cross section was determined by measuring the diameter of 200 grains. Selected billets were tempered in three stages: at 850 °C for 10 hours; at 700 °C for 20 hours; and at 650 °C for 30 hours. For the purpose of testing for refractoriness, specimens of 10 mm diameter and 100 mm working length were cut from the billets. The tests were carried out at 700 °C at loads of 22 and 18 kg/mm<sup>2</sup>, and at 650 °C at loads of 30 and 26 kg/mm<sup>2</sup>. Four specimens with various grain characteristics were tested for each load. The surfaces of the specimens after failure and their fractures were studied both visually and with the aid of a binocular microscope. Sections for metallographic study were made in the axial plane of the specimens.

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EO91/E135

These were polished electrolytically and etched in a sulphuric-phosphoric-chromic electrolyte. It was found that creep occurs under the above conditions both by viscous flow along inter-crystalline boundaries and by slip within the grains. During deformation, internal cracks develop along intercrystalline boundaries in the specimens in a direction perpendicular to the applied load. Large grains lying in the path of cracks so as to oppose their propagation perpendicular to the specimen axis, temporarily retard their spreading. No strengthening occurs, however, since failure develops further due to the formation of intercrystalline cracks in other places. The large grains, having stopped propagation of the cracks, are stress-relieved by slip, probably after they have rotated somewhat into a more favourable position. Vacancies accumulate along the slip planes, cracks form and cleavage occurs. Under the conditions investigated, failure occurs along the most closely packed planes of the type (111). The nature of failure (intra- or inter-crystalline) is determined essentially by the grain size in the specimen cross-section. As the grain size increases, the

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development of intercrystalline cracks becomes more difficult and the destruction acquires an intracrystalline character. So long as the grain size is small as compared with the diameter of the specimen, the stability of the latter does not decrease. In specimens, the cross section of which contain large grains (3-5 mm) comparable with the diameter of the specimen, cleavage in the large grains drastically weakens the cross section, as a result of which the specimen fails quite rapidly. Regions containing small, as well as large, grains exhibit different plastic properties, owing to localised predomination of different mechanisms of deformation. These result in the appearance of deflecting loads at the boundaries between these regions, which decrease the stability. There are 4 figures and 2 tables.

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On the influence of grain size ...

S/126/62/013/003/009/023  
E091/E135

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy institut  
chernykh metallov  
(Ural Scientific Research Institute of Ferrous  
Metals)  
Institut tyazhelogo mashinostroyeniya pri UZTM  
(Institute of Heavy Machinery at UZTM)

SUBMITTED: Initially, June 5, 1961, and  
after revision, July 10, 1961.

Card 5/5

S/126/62/014/001/015/018  
E071/E135

AUTHORS: Levitin, V.V., and Syreyshchikova, V.I.  
TITLE: An investigation of the strengthening phase of a  
complexly alloyed steel 3M612K (EI 612K)  
PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.1, 1962,  
144-146  
TEXT: The form of crystallites, structure and composition of  
the phase which separates during ageing and during retention under  
load were studied for the steel EI 612K. This steel, after  
hardening and ageing, possesses properties which are high for  
austenitic class steels. Electron microscopy and electron  
radiography studies and chemical analysis were made of the isolated  
phase of specimens cut out from an ingot containing: 0.09% C;  
15.0% Cr; 36.5% Ni; 4.1% Co; 3.2% W; 1.5% Ti; 0.18% Al; 0.012% B;  
1.2% Mn; 0.34% Si; 0.013% P; 0.004% S. The specimens were  
hardened from 1200 °C and annealed in three stages: 850 °C -  
10 hours; 700 °C - 20 hours; 650 °C - 30 hours. For the heat  
resistance tests specimens with a gauge length of 100 mm, 10 mm  
in diameter, were used. The phase, separating on ageing, is so  
Card 1/2

ACCESSION NR: AT4013936

S/2659/63/010/000/0116/0123

AUTHOR: Sy\*reyshchikova, V. I.; Levitin, V. V.; Farafonov, K. K.

TITLE: Investigation of strengthening, creep and failure processes in austenite steel

SOURCE: ANSSSR\* Institut metallurgii. Issledovaniya po zharoprochny\*m splavam, v. 10, 1963, 116-123

TOPIC TAGS: steel strengthening, steel creep, steel failure, austenite steel, steel plastic deformation, polygonization

ABSTRACT: The process of failure under creep was previously investigated for nonferrous metals, but only a few analyses have been made of heterogeneous alloys. This paper describes the investigation of the strengthening phase of a complex austenite steel alloy and studies the plastic deformation and failure of this steel under creep conditions. The influence of grain size on heat resistance was also investigated. The testing procedure was carried out on an IP-4M machine. Ingots of 2.1 tons were fastened to rods 300 mm. in diameter. They were then hardened and tempered (850C for 10 hours, 700C for 20 hours, and 650C for 30 hours). High-temperature samples were cut from blanks with

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S/126/63/015/003/005/025  
E021/E135

AUTHORS: Syreyshchikova V.I., and Levitin V.V.

TITLE: Investigation of intra-granular structure of  
austenitic steel after fracture during creep

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.3, 1963,  
352-356

TEXT: The authors have previously shown that in type ЭИ612К (EI612K) complex-alloyed heat-resisting steel the development of inter-crystallite cracks during high-temperature deformation is hindered and the fracture acquires an intra-granular character. The aim of the present work was to study the creep mechanism of this steel by investigating the intra-crystallite cleavage planes and grains in the axial part of the specimens after fracture. Fracture temperatures were 650 and 700 °C. Fractures were studied by back-reflection X-ray and microscopic methods. The results showed that with comparatively brief tests at 650 °C individual large grains fracture along slip planes (like single crystals). The plane of easiest slip is the {111} plane of the austenite lattice. With increasing test time and temperature the importance

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Investigation of intra-granular ...

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E021/E135

of inter-granular flow increases and elastic bending of individual crystallites can occur. The relaxation of stress in these crystallites occurs through their breakdown into sub-grains, the extent of fragmentation increasing with increasing proximity of the given grain to the fracture zone. It appears that insufficient importance has previously been attributed to fragmentation, as a particular case of polygonization, in creep; this process needs further study. The mechanism of the intra-crystallite fracture of the grain undergoing fragmentation has not been explained: the intra-crystallite crack may successively 'jump' from one sub-grain to the next, following changes in the orientation of the crystallographic plane; it is not impossible, however, that the intra-crystallite crack proceeds along sub-grain boundaries. There are 4 figures and 1 table.

ASSOCIATION: Ural'skiy institut chernykh metallov  
(Urals Institute of Ferrous Metals)

SUBMITTED: July 11, 1962

Card 2/2

SYREYSHCHIKOVA, V.I.; LEVITIN, V.V.; BLYUM, E.F.; KHUSNOYAROV, K.B.

Effect of the methods of smelting and heat treatment on the  
heat resistant properties of boiler pipe of 12Kh1MF and  
15Kh1MF steel. Stal' 25 no.4:351-354 Ap '65.

(MIRA 18:11)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh  
metallov.

L 29226-66 - ENT(m)/I/EWP(t)/ETI LJP(c) JD

ACC NR: AP6019366

SOURCE CODE: UR/0126/66/021/002/0291/0293

AUTHOR: Syreyshchikova, V. I.; Susloparov, G. D.

ORG: Ural NIICHERMET (Ural'skiy NIICHERMET)

TITLE: Investigation of carbide transformations during the tempering of steels 12Kh1MF and 15Kh1MF

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 2, 1966, 291-293

TOPIC TAGS: tempering, steel, carbide, electron diffraction, electron microscopy, metal chemical analysis, metal etching, chromium carbide, vanadium compound, molybdenum, toughness, brittleness/12Kh1MF steel, 15Kh1MF steel

ABSTRACT: The electron microscopic and electron diffraction study of the structure, form, and position of carbide phase particles, precipitated during the annealing of normalized steels 12Kh1MF and 15Kh1MF is presented. The steels had the following chemical composition (wt %):

	C	Mn	Si	S	P	Cr	Mo	V
12Kh1MF	0.14	0.54	0.26	0.022	0.016	1.15	0.26	0.20
15Kh1MF	0.14	0.46	0.29	0.018	0.023	1.34	0.94	0.20

The specimens were normalized from 980°C (steel 12Kh1MF) and 1030°C (steel 15Kh1MF). The tempering temperature was varied in the 450-780°C range; annealing time was 3 hours.

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UDC: 669.14.018.85/620.187548.74

L 29226-66

ACC NR: AP6019366

The specimens were etched in a 4% solution of picric acid and carbon replicas were used in which particles of the investigated phase were held.

After tempering at 450° large particles of cementite are preserved in the steels. During electron microscope examination of the background of large cementite plates one can see fine, columnar precipitates which are particles of hexagonal chromium carbide,  $\text{Cr}_7\text{C}_3$  ( $a = 13.98 \text{ \AA}$ ;  $c = 4.53 \text{ \AA}$ ). These precipitates are most clearly visible after tempering at 500°.

At the 450° tempering temperature, individual preecipitates of cubic vanadium carbide, VC, appear in steel 15Kh1M1F. After tempering at 500° the particles of  $\text{Cr}_7\text{C}_3$  in this steel are semitransparent and offer an excellent diffraction pattern.

Massive, electronically opaque, particles of chromium carbides are observable in the structure of steel 12Kh1MF tempered at the same temperature. Finely dispersed vanadium carbides are present here in larger numbers than in steel 15Kh1M1F. This fact is evidently associated with the lower content of molybdenum in steel 12Kh1MF which results in an acceleration of carbide formation since it is known that molybdenum complicates diffusion processes in ferrite.

After tempering at 600°,  $\text{Cr}_7\text{C}_3$  in both steels forms almost continuous tough partitions at the sites of the previous cementite precipitates. The amount of vanadium carbide in steel 12Kh1MF continues to remain substantially higher than in steel 15Kh1M1F. Further increase in tempering temperature results in coalescence of the chromium and vanadium carbides, especially noticeable in steel 12Kh1MF.

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L 29226-66

ACC NR: AP6019366

The results obtained make it possible to explain the observed lowering of toughness of normalized steels 12Kh1MF and 15Kh1M1F after tempering in the 450-650° range.

Lowering of toughness of the steels is associated with the precipitation of columnar chromium carbides on the cementite plates. The formation of continuous stringers of chromium carbides and the intensive separation of vanadium carbides at 500-650° cause even greater brittleness of the steel. The coalescence processes of chromium and vanadium carbides, occurring at higher tempering temperatures, result in increased toughness of the steels investigated.

Orig. art. has: 3 figures. [JPRS]

SUB CODE: 11, 13, 20 / SUBM DATE: 10May65 / ORIG REF: 004 / OTH REF: 003

Card 3/3 CC

SYRGABAYEVA, Z. R.

SYRGABAYEVA, Z. R. --"Serological Diagnosis of Carriers of Typhoid Fever Bacteria with the Aid of Determination of the Vi Antibodies."\*(Dissertations for Degrees in Science and Engineering Defended at USSR, Higher Educational Institutions). Leningrad State Order of Lenin Inst for the Advanced Training of Physicians imeni S. M. Kirov, Chair of Epidemiology, Leningrad, 1955

SO: Knizhnaya Letopis' No. 34, 20 August 1955

\* For the Degree of Doctor of Medical Sciences

SYRGADAIEVA, Z. N. and ORMANTAYEV, K.

"Serological Testing for Toxoplasmosis in Mentally Retarded Children and in Children with Anomalies of Development"

Voprosy toksoplazmoza, report theses of a conference on toxoplasmosis, Moscow, 3-5 April 1961, publ. by Inst Epidemiology and Microbiology im. N. F. Gamaleya, Acad. Med. Sci USSR, Moscow, 1961, 69pp.

SYRIMAYEVA, Z. R. and KUSAINOVA, G.K.

"Toxoplasmosis in Pregnant Women"

Voprosy toksoplazmoza, report theses of a conference on toxoplasmosis,  
Moscow, 3-5 April 1961, publ. by Inst Epidemiology and Microbiology  
in. N. P. Gamaleya, Acad. Med. Sci USSR, Moscow, 1961 69pp.

SYRGABAYEVA, Z.R., kand.med.nauk

Cases of congenital toxoplasmosis. Zdrav. Kazakh. 22 no.2:76-78  
'62. (MIRA 15:4)

1. Iz laboratorii parazitologii Kazakhskogo nauchno-issledovatel'skogo  
instituta epidemiologii, mikrobiologii i gigiyeny; nauchnyy rukovoditel'  
chlen-korrespondent AMN SSSR, prof. Kh.Zh.Zhumatov.  
(TOXOPLASMOSIS)

SYRGADAYEVA, Z.R., kand.med.nauk

Study of an outbreak of Anicteric leptospirosis among children.  
(MIRA 15:11)  
Zdrav.Kazakh. 22 no.6:45-48 '62.

1. Iz laboratorii parazitologii Kazakhskogo nauchno-issledovatel'-  
skogo instituta epidemiologii, mikrobiologii i gigiyeny (nauchnyy  
rukovoditel'-chlen-korrespondent AMN SSSR prof. Kh.Zh.Zhumatov).  
(LEPTOSPIROSIS)

KUSAINOVA, G.K.; SYRGABAYEVA, Z.R.

Toxoplasmosis in pregnant women. Akush. i gin. 39 no.3:66-68  
My-Je'63 (MIRA 17:2)

1. Iz Kazakhskogo nauchno-issledovatel'skogo instituta okhrany  
materinstva i detstva i Kazakhskogo nauchno-issledovatel'skogo  
instituta epidemiologii, mikrobiologii i gigiyeny.

ACC NR: AR6035040

SOURCE CODE: UR/0058/66/000/008/G005/G005

AUTHOR: Syrgiy, A. S.

TITLE: Distribution of charged particle concentration in a stationary plasma in the presence of radiative recombination

SOURCE: Ref. zh. Fizika, Abs. 8G33

REF SOURCE: Uch. zap. Kishinevsk. un-t, v. 80, 1965, 103-106

TOPIC TAGS: plasma charged particle, plasma discharge, radiative recombination, charged particle escape, volume recombination, charged particle distribution

ABSTRACT: The distribution of charged-particle concentration in a high-pressure discharge is investigated theoretically. Under these conditions the basic process of charged particles' escape from a plasma is a volume recombination. The problem is solved for the case of a plane configuration (the plasma is contained between two infinite plane-parallel plates) under the assumption that the diffusion coefficient does not depend on the coordinates. It is shown that the distribution of

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ACC NR: AR6035040

concentration is not sinusoidal, as is the case in the absence of volume recombination. S. Sobolev. [Translation of abstract] [DW]

SUB CODE: 20/

Card 2/2

9,3150

S/109/60/005/07/012/024  
E140/E163

AUTHORS: Syrgiy, A.S., and Granovskiy, V.L.

TITLE: ~~On the Theory of Deionisation~~ of a Rarefied Gas, in a  
Magnetic Field 21

PERIODICAL: Radiotekhnika i elektronika, Vol 5, No 7, 1960,  
pp 1129-1134 (USSR)

ABSTRACT: The theory of deionisation of a rarefied gas in a cylindrical container in an homogeneous magnetic field parallel to the axis is developed. It is assumed that the gas is a plasma, the gas density and temperature are everywhere the same, the gas density corresponds to the diffusion regime, the mean free paths of electrons and ions are substantially less than the cylinder dimensions, the charger carriers are electrons and positive ions of a single type, no external electric field is applied, fresh ionisation does not occur, charge recombination occurs both at the walls of the container and in the gas volume, the diffusion and recombination coefficients are constant during the process (this is strictly applicable only at later stages of the process when the plasma becomes isothermal or at the very lowest pressures), the magnetic field has no appreciable influence.

Card 1/2

83272

S/109/60/005/009/019/026  
E140/E455

26.1410

AUTHORS: Guzhova, S.K. and Syrgiy, A.S.

TITLE: Microwave Investigations of Deionization of a  
Rarefied Gas in Magnetic Field

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.9,  
pp.1516-1521

TEXT: Experimental data on the rate of deionization in magnetic field indicate an appreciably smaller influence of the magnetic field on the deionization time-constant than is predicted by the ambipolar diffusion coefficient. The present work attempts to find the influence of volume recombination in compensating the effects of magnetic field. A resonator method was used to find the deionization time-constant, and from this the ambipolar diffusion coefficient. To avoid complication due to the tensor nature of  $\epsilon$  in the presence of plasma, fields of the type  $TM_{0m0}$ ,  $TM_{110}$  were used. The experimental results obtained are in satisfactory agreement with the theory of diffusion in the presence of paired collisions. It was found that the effect of the magnetic field on the rate of deionization increases with decrease of pressure. A change in sign of  $\partial/\partial p$  at magnetic

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83272

S/109/60/005/009/019/026  
E140/E455

Microwave Investigations of Deionization of a Rarefied Gas in  
Magnetic Field

fields of approximately 600 Gauss is in agreement with the theory of diffusion in the presence of paired collisions. At concentrations below  $10^{10} \text{ cm}^{-3}$  the dependence of the transverse diffusion coefficient on the magnetic field agrees with the Townsend formula. Acknowledgment is made to V.L.Granovski for suggesting the subject and his useful advice. There are 7 figures, 1 table and 7 references: 3 Soviet and 4 English.

SUBMITTED: February 1, 1960

Card 2/2

S/109/60/005/009/020/026  
E140/E455

26.1410

AUTHORS: Syrgiy, A.S. and Granovskiy, V.L.

TITLE: Rate of Deionization in Rarefied Helium in a  
Magnetic Field. Pt.II

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.9,  
pp.1522-1530

TEXT: By measuring the total ion current at the wall and the initial number of charged particles in a volume of plasma, the relative roles of two processes, diffusion and volume recombination, on the deionization of a rarefied helium in magnetic field were investigated. At magnetic fields 0 to 1500 Gauss, gas pressure of  $10^{-2}$  to  $10^{-1}$  mm Hg and carrier concentrations greater than  $10^{11}$  cm<sup>3</sup> in a strong magnetic field, volume recombination predominates. There are 9 figures, 1 table and 6 references: 4 Soviet and 2 English.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova, Kafedra elektroniki  
(Physics Faculty, Moscow State University  
im. M.V.Lomonosov, Chair of Electronics)

SUBMITTED: January 18, 1960  
Card 1/1

SYRIKIN, Ya M.

1. The use of vacuum filters for de-watering ceramic slips. — Ya. M. Syrikyn, L. A.

figs., 3 tables.)

SYRIN, A.; SHULMAN, A.

"For the further development of the auto-transportation undertaking for general use," Automobile, 1951

SYRIN, N. A., MORKOVKIN, V. F., and UDOVKINA, N. S.

"Eclogites of the Urals."

A paper presented on 28 April, The Activity of the Moscow Society of Naturalists, Byulleten' Moskovskogo Obshchestva Ispytateley Prirody  
Vol LX.

No 6, Moscow, Nov-Dec 1955, pp 80-90, Geology Section  
Source: U-9235 -29 Nov 1956

Syrinek, F.

AGRICULTURE

Our contribution to the improvement of the feeding technique and hog feeding. p. 643.

Vol. 5, no. 12, 1958

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 4, April 1959

SYRIS'KO, I.K. (g. Severo-Yeniseysk); DROZD, M.Ya., inzh. (g. Severo-Yeniseysk)

Roof bolting with looped rods as concrete reinforcement. Gor. zhur.  
no.7:39-40 J1 '62. (MIRA 15:7)

1. Glavnyy inzhener Sovetskogo rudnika Severo-Yeniseyskogo priiskovogo  
upravleniya (for Syris'ko).  
(Mine roof bolting) (Reinforced concrete construction)

SYRISTOVA, Eva

Methodological problems in the contemporary diagnosis of  
schizophrenia. Cesk. psychiat. 53 no.3:200-205 May 57.

(SCHIZOPHRENIA, diag.  
problems (Cz))

SYRISTOVA, Eva

The problem of psychotherapy in certain cases of schizophrenia.  
Cesk. psychiat. 54 no.4:264-274 Aug 58.

1. Katedra psychologie filosoficko-historicke fakulty v Praze. O.  
Vinar (UDL Praha).

(SCHIZOPHRENIA, ther.  
psychother. (Cz))  
(PSYCHOTHERAPY  
of schizophrenia (Cz))

SYRISTOVA, E.

On the problem of psychotherapy in a case of paranoid schizophrenia.  
Cesk.psychiat. 55 no.6:382-396 D '59.

1. Katedra psychologie filosoficko-historicke fakulty KU v Praze.  
(SCHIZOPHRENIA ther.)  
(PSYCHOTERAPY)



SYRITSKAYA, O.S.

34038 SYRITSKAYA, O.S. Opyt Konveyerizatsii  
Shveyno-kettel'nykh Uchastkov  
Chlochnykh Fabrik Legkoye Prom-st'  
1949 No. 9 S. 4-6

SO: L etopis' Zhurnal'nykh Statey, Vol. 42, Moskva, 1949

SYRITSKAYA, O. S. I

7684. SYRITSKAYA, O. S. I -- Organizatsiya truda pomoshchnikov мастера; obsluzhivayushchikh kruglochulochnyye mashiny KAS - 22. M., Gizlegprom, 1954. 184 s. s. ill. 23 sm.

SO: Knizhnaya Letonsis', Vol. 7, 1955

SYRITSKAYA, O.S., inzh.

Determining loop parameters in sock knitting. Tekst. prom. 19  
no.5:39-43 My '59. (MIRA 12:10)  
(Hosiery)

SYRITSKAYA, O.S.

Characteristics of deformation in hosiery. Tekst.prom.  
19 no.8:43-47 Ag '59. (MIRA 13:1)  
(Hosiery) (Textile research)

SYRITSKAYA, O.S.

Parameters for knitting socks by the reversible and press-  
interweave method. Tekst. prom. 19 no.9:40-44 S '59.  
(MIRA 12:12)

(Knitting machines) (Hosiery industry)

SYRITSKAYA, O. S., Cand Tech Sci -- (diss) "A Study of the Structural Characteristics and Mechanical Properties of Sock Products Made by Two-Face and Press Weaving," Moscow, 1960; 31 pages; with graph, including covers. (Ministry of Higher and Secondary Specialist Education RSFSR. Moscow Textile Institute); 150 copies; free. (KL, 24-60, 133)

SYRITSKAYA, O.S., inzh.

Characteristics of the mechanical properties of hosiery goods  
in tension. Nauch.-issl.trudy VNIITP no.2:3-33 '60.

(MIRA 16:2)

(Hosiery—Testing)

(Knitting machines)

SYRITSKAYA, O.S., kand.tekhn.nauk

Some characteristics of the deformation of knit goods. Tekst.  
prom. 21 no.11:72-76 N '61. (MIRA 14:11)

1. Ispolnyayushchiy obyazannosti starshego nauchnogo sotrudnika  
Vsesoyuznogo nauchno-issledovatel'skogo instituta trikotazhnoy  
promyshlennosti.

(Knit goods—Testing)

SYNTHESIS, 2-171

USSR/Chemical Technology. Chemical Products and Their Application--Silicates.  
Glass. Ceramics. Binders, I-9

Abst Journal : Referat Zhur - Khimiya, No 2, 1957, 5188

Author : Tykachinskiy, I.D., Botvinkin, O.K., Buneyeva, L.I., Levina, R.G.,  
Okhotin, M.V., Rogozhin, Yu.V., Syritskaya, Z.M.

Institution : None

Title : Development of Alkali-Free and Low-Alkali Glass Compositions  
and of the Technology of Their Melting and Fabricatio

Original  
Publication : Steklo i keramika, k 1956, No 6, 1-6

For abstract see I.D. T kachinskiy

ROGOZHIN, Yu.V., kand. tekhn. nauk; SYRITSKAYA, Z.M., kand. tekhn. nauk;  
TARASOV, B.V., kand. tekhn. nauk.

Investigating the microhardness of various types of glass. Trudy  
VNIISTekla no.37:71-76 '57. (MIRA 11:1)  
(Glass--Testing)

AUTHORS: Syritskaya, Z.M., Rogozhin, Yu.V., Ushanova, A.V. 72-58-6-2/19

TITLE: Alkaliless, Boronless Types of Glass for the Mechanical Production of Goods (Besshchelochmyye bezbornyye stekla dlya mashinnoy vyrabotki izdeliy)

PERIODICAL: Steklo i Keramika, 1958, No. 6, Nr 6, pp. 4-6 (USSR)

ABSTRACT: These types of glass are at present not being produced in the USSR. This investigation aims at developing these types of glass for the production of tubes and glass fibres. At the same time the question is to be examined whether it is possible to obtain this composition from raw material found in the Estonian SSR, viz. quartz sand, dolomite, and phosphorite. Chemical composition is given in table 1. The compositions of glass to be melted are given in table 2. The results obtained by the investigation of the best qualities of glass, 39 and 147, are given in table 3. The curves of the viscosity of these types of glass may be seen from the illustration. In table 4 the coefficients of thermal dilatation and the fusing temperature, determined by means of a dilatometer constructed by the Glass Institute, are given. The compositions of the types of glass melted at the maximal temperatures of 1450° and 1480° in the course of

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Alkaliless, Boronless Types of Glass for the  
Mechanical Production of Goods

72-58-6-2/19

30 hours are given in table 5, and the composition of the layer is given in table 6. The forming of tubes with a diameter of 25-30 mm from glass 147 (at 1340-1360°) presented some difficulties because the glass mass cooled down rapidly. The blowing of cylinders and the pressing of glass balls was carried out without difficulties and so did the production of tubes and other blown- and pressed goods from glass 39. Burning off was carried out at 620°. The drawing of glass fibres was also carried out satisfactorily. There are 1 figure, and 6 tables.

ASSOCIATION: Institut stekla (Glass Institute)

1. Glass--Production
2. Glass--Physical properties
3. Glass--Processing
4. Glass--Viscosity

Card 2/2

15(2)  
 AUTHOR: None Given  
 TITLE: Glass Science at the VIII Mendeleev Congress (Sovetskaya Akademiya Nauk VIII Mendeleyevskoye s'yzhde)  
 PERIODICAL: Steklo i keramika, 1959, No 5, pp 1-4 (USSR)  
 ABSTRACT: In the beginning a proclamation of the Tef KPSG to the personnel of the building material industries for a qualitative and quantitative increase in production is mentioned. The Congress took place in Moscow at the second half of March of the current year and was devoted to the 95th anniversary of the great scholar's birthday. Outstanding chemists of the Soviet Union and the People's Democracies attended the Congress. The principal problems of the development of chemistry were discussed at the plenary meetings and the meetings of the 18 Congress sections. Professor I. I. Kityagorodskiy opened the meetings of the sub-section for glass production as well as the stages of development of Soviet glass production as well as the number of promising tasks in the field of glass technology. Moreover, the following lectures were held: Doctor Korvali (People's Republic of Hungary) investigated the structure of the top-layers of glass;

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A. J. Arutunian (Illi izm Leningrad) discussed the formation of a finely dispersed crystalline phase from the glass-like phase; V. V. Vergin and G. O. Karpetskyan (GOI) reported on absorption spectra, luminescence, and photochemical properties of cerium-glass types; A. G. Vlasov (GOI) reported on the quantitative reciprocal relations between ordered and disordered glass phases; T. A. Poryvinskaya, Institut Khimii Stekla (USSR) discussed the reasons for the disagreement on the problem of the structure of the glass phase; Professor G. K. Kozlovskiy, M. V. Anisimov, and M. V. Kozlovskiy (Glass Institute) reported on the results of the investigation of the structure of the glass phase by the method of Thermal Analysis and Optical Polarization; Ye. V. Podubko (GOI) discussed the mechanism of electric glass melting and the melting of silicates by means of high-frequency currents; Yu. G. Shneyberg reported on strontium-magnesium glasses without lead and boron for science and majolica which have been developed in the Gosudarstvennyy Nauchno-Issledovatel'skiy Keramicheskii Institut (State Scientific Research Institute of Ceramics); L. S. Yashneva, and V. B. Melchakov (GOI) discussed the role played by the

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surface protection film in the destruction of silicate glasses; G. I. Feynberg (GOI) discussed the coloring characteristics and the technology of phosphate glasses; O. V. Masurin (IIT) reported on the mobility of sodium ions in glass types of the system Na<sub>2</sub>O-20-SiO<sub>2</sub>; Z. A. Mosova (NII Stroykeramika) discussed the process of sintering the glasses by lead oxide and aluminum; L. G. Mal'chukova, Kharkovskiy Politehnicheskii Institut (Kharkov Polytechnic Institute) reported on silicate formation and sintering processes in the sintered glass layer; M. V. Kozlovskiy investigated various types of glasses; M. Shneyberg (Glass Institute) reported on the development of luminescence in silica by spectroscopic analysis; G. B. Bogdanov (Glass Institute) reported on the results of the investigation of the mechanism of the formation of crystalline centers in phosphate glasses; Ye. V. Kozlovskiy (Glass Institute) discussed the results of the investigation of the tendency of phosphate systems towards glass formation; L. A. Grechanskii, M. V. Kozlovskiy, and V. G. Karpetskyan (IIT) reported on the investigation of types of sintering oxide glass on the basis of V<sub>2</sub>O<sub>5</sub>; M. V. Bolotin, L. A. Grechanskii, I. V. Shukova, and Ye. A. Feynberg (IIT) discussed the production of conducting films in types of glass which contain components easily to be regenerated.

5505/15

Воспроизведение закончено по аккредитации института. Уд. Ленинград, 1958.

Sponsoring Agencies: Institut Khimii silikatov Akademii nauk SSSR. Vsesoyuznyye khimicheskoye obshchestvo imeni D.I. Mendeleeva and Gosudarstvennyy ordena Lenina opticheskii institut imeni S.I. Vavilova.

Editorial Board: A.I. Augustinik, V.P. Barakovsky, M.A. Esherbakov, O.K. Pavlyuk, V.V. Vargin, A.G. Vlasov, K.B. Yevstrop'yev, A.A. Lebedev, M.A. Pavlyev, V.S. Molchanov, R.L. Myller, Ye.A. Par'y-Koshits, Chinnai, M.A. Toropov, V.A. Florinskaya, A.K. Yakhind; Ed. of Publishing House: I.V. Suvorov; Tech. Ed.: V.T. Bocharov.

**PURPOSE:** This book is intended for researchers in the science and technology of classes.

**NOTE:** The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1973. They deal with the methods and results of studying the structure of glasses, the relation between the structure and properties of glasses, the nature of the chemical bond and glass structure, and the crystallochemistry of glasses. Fused silica, mechanism of vitrification, optical properties and glass structure, and the electrical properties of glasses are also discussed. A number of the reports deal with the dependence of glass properties on composition, the melting of glasses and radiation effects, and mechanical, technical, and chemical properties of glasses. Other papers treat glass semiconductors and soda borosilicate glasses. The Conference was attended by more than 300 delegates from Soviet and East German scientific organizations. Among the participants in the discussion were M. A. Solomin, Ye. V. Kuvshinskiy, Yu. A. Gastev, V. P. Pryamishnikov, Yu. Ye. Gotlib, O. P. Shcheglov-Petrovsky, G. P. Mikhalov, A. N. Kuznetsov, D. I. Levin, A. P. Matkovskiy, K. T. Plachinskiy, A. Ye. Kuznetsov, E. V. Lazareva, G. V. Buzranovskaya, A. A. Kalenkov, M. A. Ekonomikh, P. Ye. Bokin, N. S. Melchior, Ya. A. Kuznetsov, Ye. Pozdnev, R. S. Shevelvich, Z. G. Piskunov, and O. S. Molchanova.

The final session of the Conference was addressed by Professor I.I. Kiselevskiy, Honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology: Gosudarstvennyy opticheskii institut (State Optical Institute), Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR), Fizicheskii institut AN SSSR (Physics Institute AS USSR), Fiziko-tekhnicheskii institut AN SSSR (Physicochemical Institute AS USSR), Institut fiziki AN SSSR, Minsk (Institute of Physics, Academy of Sciences, Belorussian SSR, Minsk), Laboratoriya fizicheskoy khimii silikatov (Laboratory of Physical Chemistry of Silicates of the Institute of Chemistry, Academy of Sciences, Belorussian SSR, Minsk), Institut obshchey i neorganicheskoy khimii AN SSSR, Minsk (Institute of General and Inorganic Chemistry, Academy of Sciences, Belorussian SSR, Minsk), Institut vysokomolekulyarnykh soedyneniy AN SSSR (Institute of High Molecular Compounds, AS USSR), Gosudarstvennyy institut stekla (State Institute for Glass), Gosudarstvennyy institut steklokhimicheskogo stekla (State Institute for Glass Fibers), Gosudarstvennyy institut steklokhimicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-tekhnicheskii institut, Tomsk (Siberian Physicochemical Institute, Tomsk), Leningradskiy gosudarstvennyy universitet (Leningrad State University), Moskovskiy khimiko-tekhnicheskii institut (Moscow Institute of Chemical Technology), Leningradskiy tekhnicheskii institut im. Lensovet (Leningrad Technological Institute named Leninsovet), Belorusskiy politehnicheskii institut Minsk (Belorussian Polytechnical Institute, Minsk), Novosibirskiy politehnicheskii institut (Novosibirsk Polytechnical Institute), and Sverdlovskiy politehnicheskii institut (Sverdlovsk Polytechnical Institute). The Conference was sponsored by the Institute of Silicate Chemistry AS USSR (Acting Director - A.S. Golub), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleeva (All-Union Chemical Society named D.I. Mendeleev), and the Gosudarstvennyy ordena Lenina opicheskii institut imeni B.I. Vavilova (State Order of Lenin Optical Institute named B.I. Vavilov). The 15 resolutions of the Conference include recommendations to organize a new Center for the purpose of coordinating the research work of the USSR Academy of Sciences and to join the International Committee on Glass. The Conference thanks A.A. Lebedev-Akademich, Professor and Chairman of the Organization of Chemists; Y.A. Pary-Isobits, Doctor of Physics and Mathematics, Member of the Organizational Committee; and R.H. Myuller, Doctor of Chemical Science, Member of the Organizational Committee. The editorial board thanks G.N. Bartenev, M.V. Vol'kenshteyn, I.I. Denkins, D.P. Dobychkin, S.K. Dubrovoy, V.A. Ioffe, and B.T. Kolyaditskiy. References accompany individual reports.

Vitreous State (Cont.)	SOV/5035
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SYRITSKAYA, Z.M.; YAKUBIK, V.V.

Studying glasses of the  $P_2O_5$  -  $Al_2O_3$  - ZnO system. Stek.i  
ker. 17 no.2:18-21 F '60: (MIRA 13:6)  
(Glass)

AUTHOR: Syritskaya, Z. M.

S/072/60/000/03/021/023  
B003/B008

TITLE: 3rd All-Union Conference on the Vitreous State

PERIODICAL: Steklo i keramika, 1960, Nr 3, pp 43-46 (USSR)

ABSTRACT: The 3rd All-Union Conference on the Vitreous State was held in Leningrad at the end of 1959. It was organized by the Institut khimii silikatov AN SSSR (Institute of the Chemistry of Silicates AS USSR), Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleeva (All-Union Chemical Society imeni D. I. Mendeleev) and Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova (State Optical Institute imeni S. I. Vavilov). More than 100 reports on the structure of glass, investigation methods of the vitreous state, the mechanism of vitrification and physicochemical and technical properties of glasses were delivered. The Conference was opened by Academician A. A. Lebedev. Fundamental investigation methods and results concerning the glass structure were discussed at the 1st meeting. Academician A. A. Lebedev reported on possibilities and results of optical methods, Ye. A. Poray-Koshits on the diffraction method, K. S. Yevstrop'yev on general problems concerning structure and properties of glasses. The 2nd meeting produced 5 reports on the problem of the vitreous state: R. L. Myuller, "Chemical Peculiarities of Polymeric Vitreous Materials and the

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Nature of Vitrification"; N. A. Goryunova and B. T. Kolomiyets, "On the Problems of Conformities of the Vitrification"; V. V. Tarasov, "Glass as a Polymer"; A. N. Dauval'ter, "Theory of Glass Structure"; A. G. Vlasov, "Natural Oscillations of the Glass Lattice". The 3rd meeting produced 9 reports on investigation results of silicate melts and on problems of the mechanism of vitrification: A. I. Avgustinik, "On the Problem of the Formation of the Crystalline Phase From the Silicate Melt"; O. K. Botvinkin, "Process of Vitri-fication and the Structure of Glass"; B. M. Leninskikh, O. A. Yesin and V. I. Musikhin, "On the Structure of Melts"; I. T. Sryvalkin and O. A. Yesin, "Thermodynamic Properties of the Silicate Systems  $\text{FeO} - \text{CaO} - \text{SiO}_2$  and  $\text{CaO} - \text{Al}_2\text{O}_3 - \text{SiO}_2$ "; G. M. Bartenev, "Mechani-cal and Structural Vittrification"; M. V. Vol'kenshteyn, "Mechanism of Vittrification". At the 4th meeting, 13 reports dealt with problems of the glass structure and optical investigation methods: V. A. Florinskaya, "Infrared Reflection Spectra of Sodium Silicate Glasses and Their Relations to the Structure"; Ya. S. Bobovich and T. P. Tulub, "Smekal-Raman Dispersion of Light and the Structure of Some Silicate Glasses"; V. A. Kolesova, "Investigation of the Vibrational Spectra of Aluminosilicate Glasses"; N. N. Sobolev reported on the work of the Fizicheskii Institut AN SSSR (Institute of Physics AS USSR) with

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glasses from one component, with the help of infrared spectrophotometry and the Smekal-Raman dispersion; T. A. Sidorov reported on the molecular structure and the properties of the crystalline quartz; S. M. Brekhovskikh and V. P. Cheremisinov reported on structural investigations of lead- and bismuthborate glasses with the aid of infrared spectroscopy; A. G. Vlasov, "The Quantitative Relation of the Orderly and Irregular Phase in Glass"; G. O. Bagdyk'yants and A. G. Alekseyev, "Electronographic Investigation of the Structure of Glasses"; N. A. Voyshvillo, "On the Structure of a Sodium-boron-silicate Glass Submitted to Enduring Thermal Treatment"; N. S. Andreyev, V. I. Aver'yanov, N. A. Voyshvillo, "Structural Interpretation of the Anormal Dispersion of the Visible Light in Sodium-boron-silicate Glasses". At the 5th meeting, 9 reports dealt with the investigation results of sodium-boron-silicate glasses. A. A. Appen and Gan' Fu-Si, "Boron and Alumoboron Anomaly of the Properties of Silicate Glasses"; Ye. I. Galant, "On the Coordination Numbers of Aluminum and Boron in Some Glasses"; S. P. Zhdanov reported on structural changes in boron-silicate glasses; Ye. A. Poray-Koshits and S. P. Zhdanov reported on some controversial problems concerning the structure of boron-silicate glasses and their porous products; Ye. A. Poray-Koshits and N. S. Andreyev, "Submicroscopic Inhomogeneities in the Structure of Complex Glasses". The 15 reports at

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B003/B008

the 6th meeting dealt with the electric properties of glasses. L. M. Belyavskaya reported on the structure determination of glass with the aid of an inhomogeneous electric field; N. M. Verebeychik and V. I. Odelevskiy, "Structure and Properties of Some Oxide Glasses in the Light of the Polymer-theory of the Vitreous State"; R. L. Myuller reported on the agility and the degree of dissociation as functions of the ionic and atomic composition of the glass; V. I. Odelevskiy reported on the nature of dielectric losses in glasslike and crystalline aluminosilicates; V. P. Petrosyan, "Investigation of the Dielectric Polarization and the Losses in Phosphate Glasses"; V. A. Presnov, V. I. Gaman and L. M. Krasil'nikov reported on investigations of the conductivity of glasses in electric high-tension fields, K. K. Yevstrop'yev on the diffusion of  $\text{Na}^{22}$  and  $\text{K}^{42}$  in some silicate glasses, V. A. Ioffe, I. S. Yanchevskaya and G. I. Khvostenko on electric properties of crystalline and glasslike aluminosilicates. O. V. Mazurin spoke on his studies which were carried out under the supervision of Professor K. S. Yevstrop'yev at the Kafedra stekla LTI imeni Lensovet (Chair for Glass of the Leningrad Technological Institute imeni Lensovet) in the report: "The Dependence of the Electroconductivity of Glasses on the Chemical Composition". V. A. Khar'yuzov, O. V. Mazurin and

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N. M. Zubkova gave investigation results on the specific electroconductivity of glasses of the system  $\text{SiO}_2 - \text{B}_2\text{O}_3 - \text{BaO}$  in the temperature range of from 400-1300° and on the influence of additions of aluminum- and zinc oxide on the electric conductivity of these glasses. At the 7th meeting, 6 reports dealt with glasses as semiconductors, 9 with the coloring of glasses and the influence of radiation and 4 reports with technical properties of glasses. V. A. Ioffe and G. I. Khvostenko, "Electric Properties of Some Semiconductor Glasses". B. T. Kolomiyets, N. A. Goryunova and V. P. Shilo reported on methods for the production of chalcogenide glasses, on some of their general properties and on the limits of the vitreous state in the systems  $\text{Tl}_2\text{Se} - \text{As}_2\text{Se}_3$ ,  $\text{Tl}_2\text{Se} - \text{Sb}_2\text{Se}_3$ ,  $\text{Sb}_2\text{Se}_3 - \text{As}_2\text{Se}_3$ ,  $\text{Tl} - \text{As} - \text{Se}$ . B. T. Kolomiyets and B. V. Pavlov reported on the optical absorption in a number of binary chalcogenide systems. B. T. Kolomiyets, T. N. Mamontova and G. F. Nazarova reported on the electron conductivity of chalcogenide glasses. A. A. Vaypolin, Ye. A. Poray-Koshits, "Radiographic Investigation of the Structure of Vitreous Arsenic Chalcogenides". V. V. Tarasov and V. A. Romanovskiy reported on the chain structure of the vitreous arsenious sulphide determined by them with calorimetric measurements. K. P. Azarov reported on structure and properties of ferrous boron glasses and

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B003/B008

boron-free glasses. I. N. Berezhnaya, "The Influence of Radiation on Glass and Its Absorption Spectra". S. M. Brekhovskikh reported on a number of glass compositions with highly protective effect against gamma radiation and neutron flux. L. M. Blyumen reported on the favorable influence of an increased magnesium oxide content on the damping properties of an aluminous glass in the presence of fluoride and  $TiO_2$ . V. V. Vargin and T. N. Veynberg, "Coloring of Glasses in Connection With Their Structure". N. I. Vlasova, Ye. I. Galant, A. A. Kefeli, "Absorption Spectrum of the  $Co^{2+}$  Ion as Indicator for the Coordination of Boron and Aluminum in Glasses". V. P. Danilov and N. V. Berbash reported on the change of the spectral absorption of glasses of simple composition under the influence of gamma rays. G. O. Karapetyan reported on the influence of the structure of glasses on spectral and chemical properties of the Cer-ions. N. F. Orlov reported on the role of the admixtures and the crystalline state of the lattice in the coloring of quartz glass by gamma radiation. L. M. Blyumen and R. L. Shuster reported on the physicochemical nature of pore formation in silicate melts (foam glass, ceramzite). Ye. V. Yermolayeva reported on physico-chemical investigations of melts of refractory oxides in a state of equilibrium. I. F. Ponomarev, "The Importance of the Vitreous Phase in the Formation of the Ceramic Body and the Cement Clinker". V. A. Presnov reported on the physico-

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B003/B008

chemical fundamentals of the fusing of glass and metal. The 8th meeting dealt with physical chemistry and mechanical properties of glass. K. S. Yevstrop'yev, G. M. Bartenev and S. K. Dubrovo made comprehensive reports. A. A. Appen reported on the fundamental structural parameters which determine the properties of the glass. A. V. Gladkov, V. A. Ratobyl'skaya, V. V. Tarasov reported on research results of the polymeric structure of inorganic glasses. L. I. Demkina reported on peculiarities of the expansion of oxides in silicate glasses. V. G. Slavyanskiy reported on the subject: "The Energy of Covalent Bonds in Glass and Their Role in the Process of the Viscous Flux". Z. M. Syritskaya reported on physico-chemical properties of alumophosphate glasses. Yu. A. Shmidt reported on the dependence of the properties of alkali silicate glasses on the composition. Z. N. Shcheglova reported on: "Investigation of the Dependence of the Optical Properties of Phosphate Glasses on the Composition". A. K. Yakkhind reported on the subject: "The Periodic System and the Optical Constants of Glass". M. S. Aslanova reported on: "Mechanical Properties of Glass Fibers". G. M. Bartenev, A. S. Yeremeyeva made a report on the mechanical properties of inorganic glasses in the anomalous interval and on their structure. Ye. I. Kozlovskaya reported on the elastic properties of glasses and on the influence of the composition of the glasses on their mechanical

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properties. A. V. Abramyan reported on the subject: "Leaching of Molten Glasslike Basalts by Aqueous Solutions of Acids and the State of the Oxides in the Structure of Glass Basalts". S. M. Brekhovskikh and V. N. Sesorova reported on synthesis and investigation of hafnium silicate glasses. S. K. Dubrovo reported on physico-chemical properties of gallium silicate glasses. V. A. Dubrovskiy and T. S. Dubrovskaya reported on the surface film forming on calcium-sodium glass in the acidic, neutral and basic medium. The following persons reported at the final meeting: V. F. Kokorina on the influence of the alkaline earth oxides on the chemical stability of glasses in a humid atmosphere; L. Ya. Mazelev on vitrification and properties of borate glasses; B. P. Nikol'skiy, Ye. A. Materova and V. V. Moiseyev on the reaction of electrode glasses with solutions. Doctor Vogel and Roetger spoke as guests from Eastern Germany. Academician N. V. Belov, M. A. Bezborodov, I. I. Kitaygorodskiy, and E. K. Keler also spoke at the final meeting.

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ACCESSION NR: AR3000547

S/0081/63/000/007/0416/0416

SOURCE: RZh. Khimiya, Abs. 7481

AUTHOR: Keirim-Markus, I. B.; Syritskaya, Z. M.; Yakubik, V. V.

TITLE: Steklo. Ryul. Gos. n.-1. in-ta stekla, no. 2 (111), 1961, 77-89

CITED SOURCE: Study of thermoluminescent aluminophosphate glasses

TOPIC TAGS: thermoluminescent aluminophosphate glasses; gamma irradiation

TRANSLATION: A study was made of the effect of gamma-irradiation on brilliance of luminescence of aluminophosphate glasses activated with Cu sub 2 0, Ag sub 2 0, SnO sub 2, PbO, Sb sub 2 0 sub 3, Bi sub 2 0 sub 3, Cr sub 2 0 sub 3, and other oxides used in crystallophosphors. Synthesis of glasses having the composition (in % by weight): Al sub 2 0 sub 3. 3P sub 2 0 sub 5, 50, metaphosphates of elements of Groups

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ACCESSION NR: AR3000547

I and II of periodical system, 50; was carried out in crucibles having a capacity of 0.5 liter, in furnaces with gilit heaters (for glasses of melting point 1400°) or in a kerosene furnace. The glass measuring 15x15x4 mm was irradiated with preparations of Co sup 60 at a dose of about 2 . 10 sup 4 roentgens. The best thermo-luminescence effect was exhibited by glasses activated with Mn, Cu and Ce in the form of the lower oxide. Brilliance of the glow undergoes no decrease for 1 month after irradiation. The glasses are recommended as dosimeters of gamma-radiation. Orig. art. has 11 references. A. Armenyan

DATE ACQ: 21May63

ENCL: 00

SUB CODE: 00

Card

2/2

ACCESSION NR: AR4033710

S/0081/64/000/003/M012/M012

SOURCE: Referativnyy zhurnal. Khimiya, Abs. 3M83

AUTHOR: Syritskaya, Z. M.; Yakubik, V. V.

TITLE: Investigation of some of the physicochemical properties of  $\text{ZnO-Al}_2\text{O}_3\text{-P}_2\text{O}_5$  glass (HF-resistance of glass)

CITED SOURCE: Steklo. Biol. Gos. n.-i. in-ta stekla, no. 3(116), 1962, 75-86

TOPIC TAGS: glass, zinc phosphate glass, aluminum phosphate glass, glass physico-chemical property, glass HF resistance, hydrofluoric acid, HF resistant glass

ABSTRACT: The stability of glass whose composition is located on the monovariant  $\text{ZnO-P}_2\text{O}_5\text{-Al}_2\text{O}_3\text{-3P}_2\text{O}_5$  curve was investigated for glass varieties with 11.5%  $\text{Al}_2\text{O}_3$  and with 47.5 or 53.5%  $\text{P}_2\text{O}_5$  by treating  $10 \times 10 \times 12 \text{ mm}^3$  plate-shaped samples with anhydrous  $\text{HF}_4$  for 1-4 hrs. at the temperature of liquid  $\text{N}_2$  and by treating  $10 \times 10 \times 3 \text{ mm}^3$  plate-shaped samples with HF for 8 hrs. at 20C. The results were evaluated by the depth of the surface destruction ( $1\text{-}0.7 \mu$ ). The kinetics of the destruction and the effect of repeated (2-3 times) treatment with HF-solution and pre-polishing of the samples were also investigated. The extract was analyzed chemically, chromatographically and the data obtained are presented graphically. The

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EPF(n)-2/EWP(q)/EWT(m)/BDS AFFTC/ASD/APGC/SSD Pu-4/  
L 12861-63 Pq-4 WH/DH  
ACCESSION NR: AP3003975 S/0089/63/015/001/0048/0052 74  
73

AUTHOR: Bochvar, I. A.; Vasil'yeva, A. A.; Keirim-Markus, I. B.; Prosina, T. I.;  
Sy\*ritskaya, Z. M.; Yakubik, V. V.

TITLE: Ionizing radiation dosimeters based on measurement of thermolumines-  
cence of aluminophosphate glasses (IKS dosimeters) 19 10

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 48-52 15

TOPIC TAGS: ionization dosimeter, aluminophosphate glass, Beta-radiation  
measurement, Gamma-radiation measurement, slow-neutron measurement, synchro-  
cyclotron, high-energy proton, IKS dosimeter

ABSTRACT: Ionization dosimeters made of aluminophosphate-covered glass were  
developed for measuring  $\beta$ - and  $\gamma$ -radiation, slow neutrons, and high-energy  
charged particles in the range from 0.02 to  $(1-2) \cdot 10^5$  rads. The dosimeters  
operate on the following principle: the energy of ionizing radiation absorbed  
by the glass is stored in it in the form of light sum of the luminescence,  
which is emitted during heating of the glass and can then be recorded. The  
dosimeters are capable of accumulating and storing information over long  
periods, e.g., up to a month at 150C. While the dosimeter glass is not

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ACCESSION NR: AP3003975

excited by daylight, an exposure of 40 days results in de-excitation of the stored light by 26—38%. The effective atomic number for the optimum composition of glasses is 11-13. A filter consisting of 0.6 mm Sn + 0.5 mm Al allows for compensation of the energy dependence at 40 Kev and above with an error of  $\pm 20\%$ . The dosimeter was tested using the synchrocyclotron of the Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) with proton fluxes in the energy range of 100 to 500 Mev showed that the sensitivity of the detector glass to the tissue dose of high-energy protons coincides within 10% with the sensitivity of glass to  $\gamma$ -rays, indicating that the detector can be used for mixed p- and  $\gamma$ -radiation. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 19May62

DATE ACQ: 08Aug63

ENCL: 00

SUB CODE: NS

NO REF SOV: 002

OTHER: 007

Card 2/2

YUDIN, N.A., inzh.; SYRITSKAYA, Z.M., kand.tekhn.nauk

Synthesis and study of types of glass for dishes made with rare earth elements. Stek.i ker. 20 no.2:21-26 F '63.

(MIRA 16:2)

1. Gusevskoy filial Instituta stekla (for Yudin). 2. Institut stekla.

(Rare earth metals)

(Glass, Colored)

SYRITSKAYA, Z.M., kand. tekhn. nauk; YUDIN, N.A., inzh.

Glasses of the  $\text{SiO}_2 - \text{CaO} - \text{Na}_2\text{O} - \text{K}_2\text{O}$  system colored with rare earth oxides. Stek. 1 ker. 20 no.8:18-20 Ag '63.

(MIRA 16:11)

1. Gosudarstvennyy institut stekla (for Syritskaya).
2. Gusevskoy filial Gosudarstvennogo instituta stekla (for Yudin).

USSR

L.417-64 EWP(q)/EWT(m)/BDS AFFTC/ASD/APGC WH/MLK(a)  
ACCESSION NR: AP3007456 S/0286/63/000/009/0048/0048

AUTHOR: Bochvar, I. A.; Keirim-Markus, I. B.; Yakubik, V. V.;  
Sy\*ritskaya, Z. M. *15 B*

TITLE: Aluminophosphate glass *15* formulation. Class 32, No. 154379 *15*

SOURCE: Byul. izobret. i tovarn. znakov, no. 9, 1963, 48

TOPIC TAGS: glass, aluminophosphate glass, preparation, aluminum oxide, P sub 2 O sub 5, dosimeter, luminescence, thermoluminescence, thermoluminescence dosimeter

ABSTRACT: An Author Certificate has been issued for an aluminophosphate glass for use in glass dosimeters, containing aluminum oxides and phosphorus pentoxide. So that the glass may be used in thermoluminescence dosimeters and so that a wide range of doses may be determined with a high degree of reliability, the following are added to 100% of the glass: 0—8% Li<sub>2</sub>O, 0—10% Na<sub>2</sub>O, 0—15% SrO, 0—20% CS<sub>2</sub>O, 0—15% MgO, 0—15% SiO<sub>2</sub>, and 0.05—0.25% activated MnO<sub>2</sub>.

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L 417-64

ACCESSION NR: AP3007456

ASSOCIATION: none

SUBMITTED: 13Jul61

DATE ACQ: 14Oct63

ENCL: 00

SUB CODE: CH, MA

NO REF SOV: 000

OTHER: 000

Card 2/2

SYRITSKAYA, Z. M.; YAKUBIK, V. V.

"Coordination number of a basic ion in glass and structure of phosphatic glasses."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

L 4951-66 EWT(1)/EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EWP(b) IJP(c) - 66-41-  
 ACC NR: AP5025717 SOURCE CODE: UR/0286/65/000/018/0070/0071  
 AUTHORS: <sup>44 55</sup>Aslanova, M. S.; <sup>44 55</sup>Syritskaya, Z. M.; <sup>44 55</sup>Feykner, S. Ya. <sup>78</sup>  
 ORG: none  
 TITLE: Glass. Class 32, No. 174779<sup>15</sup> announced by State Scientific Research  
 Institute of Glass (Gosudarstvennyy nauchno-issledovatel'skiy institut stekla)]  
 SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 70-71  
 TOPIC TAGS: <sup>44 55</sup>glass, <sup>21.44.55</sup>dielectric permeability, thermal stability, chemical stability  
 ABSTRACT: This Author Certificate presents a method for obtaining a glass of high  
 thermal and chemical stability, high dielectric permeability, and low temperature  
 of cooking. The components making up the glass are taken in the following  
 proportions (in wt %): P<sub>2</sub>O<sub>5</sub>--30-40, TiO<sub>2</sub>--51-60, SiO<sub>2</sub>--3-6, and less than 2% of  
 N<sub>2</sub>O<sub>5</sub>.  
 SUB CODE: MT/ SUM DATE: 02Nov64  
 Card 1/1 UDC: 666.112.92:546.18  
<sup>07011587</sup>

I. 3546-86 EWP(z)/EPA(s)-2/EWT(m)/EWP(1)/EPA(w)-2/EWP(b) WE  
 ACCESSION NR: AP5024427 UR/0286/65/000/015/0133/0133  
 666.29  
 AUTHORS: Rogozhin, Yu. V.; Syritskaya, Z. M.; Ushanova, A. V. 20  
 TITLE: A method for chemically stable enamels. 15 Class 48, No. 173567 15  
 SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 133  
 TOPIC TAGS: enamel, paint, sulfur trioxide  
 ABSTRACT: This Author Certificate presents a method for obtaining chemically stable enamels. To improve the technical parameters of the enamels, SO<sub>3</sub>" ion in the amount of 0.3-1.0% by weight is added to the original batch by introducing sulfates such as lithium sulfate.  
 ASSOCIATION: none  
 SUBMITTED: 14Dec63 ENCL: 00 SUB CODE: CC, MT  
 NO REF SOV: 000 OTHER: 000  
 Card 1/1

L 13556-66 EWP(e)/EWT(m)/EWP(b) GS/WH

ACC NR: AT6000484

SOURCE CODE: UR/0000/65/000/000/0154/0156

AUTHOR: Syritskaya, Z. M.; Yakubik, V. V.

ORG: None

TITLE: Coordination number of cations in glass and structure of phosphate glasses

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964. Stekloobraznoye sostoyaniye (Vitreous state); trudy soveshchaniya. Leningrad, Izd-vo Nauka, 1965, 154-156

TOPIC TAGS: phosphate glass, glass property, coordination chemistry, aluminophosphate glass, *SILICON, ALUMINUM*

ABSTRACT: The authors postulate that in phosphate glasses the composition of which corresponds to definite chemical compounds, silicon, aluminum, and boron retain the coordination which they have in the corresponding crystalline compounds. As the composition becomes increasingly different from that of definite compounds, silicon and aluminum may manifest several coordination numbers at a time. The compounds formed in the systems

$\text{Al}_2\text{O}_3\text{-P}_2\text{O}_5$ ,  $\text{SiO}_2\text{-Al}_2\text{O}_3\text{-P}_2\text{O}_5$ , and  $\text{P}_2\text{O}_5\text{-B}_2\text{O}_3$  and the corresponding coordination of the elements are discussed. No glasses are formed in the  $\text{P}_2\text{O}_5\text{-B}_2\text{O}_3$  system. It is concluded that in phosphate glasses, the coordination number of Al and Si has an all-important effect on the size of the region of glass formation. Al and Si have coordination numbers of

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L 13556-66

ACC NR: AT6000484

6 and 4 simultaneously in these glasses. In the  $Al_2O_3-P_2O_5$  system, the rule applying to silicate glasses holds, namely, that as the basicity of the glass increases, the coordination number of aluminum decreases. Orig. art. has: 2 figures.

SUB CODE: 07, 11/ SUBM DATE: 22May65/

Card 2/2

I. 3546-36 EWP(s)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(b) WE  
ACCESSION NR: AP5024427 UR/0286/65/000/015/0133/0133  
666.29

AUTHORS: Rogozhin, Yu. V.; Syritskaya, Z. M.; Ushanova, A. V. 20  
B

TITLE: A method for chemically stable enamels. Class 48, No. 173567 15

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 133.

TOPIC TAGS: enamel, paint, sulfur trioxide

ABSTRACT: This Author Certificate presents a method for obtaining chemically stable enamels. To improve the technical parameters of the enamels,  $SO_3^{2-}$  ion in the amount of 0.3-1.0% by weight is added to the original batch by introducing sulfates such as lithium sulfate.

ASSOCIATION: none

SUBMITTED: 14Dec63

ENCL: 00

SUB CODE: CC, MT

NO REF SOV: 000

OTHER: 000

*mlr*  
Card 1/1

L 11155-66 EWP(e)/EWT(m)/EWP(b) WH

ACC NR: AP6000347

SOURCE CODE: UR/0286/65/000/021/0043/0043

AUTHORS: Syritskaya, Z. M.; Ivanova, V. M.; Anasovskaya, Z. A.; Meller, E. A.; Tsukanov, A. A.

ORG: none

TITLE: Glass. Class 32, No. 176051<sup>15</sup> [announced by Gusevskiy Branch of the State Scientific Research Institute of Glass (Gusevskiy filial nauchno-issledovatel'skogo instituta stekla)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 21, 1965, 43

TOPIC TAGS: glass, silicon dioxide, alumina, boron compound, magnesium oxide, calcium oxide, sodium oxide, potassium oxide

ABSTRACT: This Author Certificate presents a glass for producing chemically stable products. The glass contains  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{B}_2\text{O}_3$ ,  $\text{MgO}$ ,  $\text{CaO}$ ,  $\text{Na}_2\text{O}$ , and  $\text{K}_2\text{O}$ . To increase its resistance to the action of glucose solution with ascorbic acid, the above components are contained in the following amounts (wt. %):  $\text{SiO}_2$  70-74;  $\text{Al}_2\text{O}_3$  7-9;  $\text{B}_2\text{O}_3$  2.5-5.5;  $\text{MgO}$  1-3.5;  $\text{CaO}$  1-2;  $\text{Na}_2\text{O}$  6-7.5;  $\text{K}_2\text{O}$  1.5-2; and also 2-5% of  $\text{La}_2\text{O}_3$ .

SUB CODE: 11/ SUBM DATE: 20Jun64

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UDC: 666.117.4

L 16790-66 EWP(e)/EWT(m) WH

ACC NR: AP6002541

(A)

SOURCE CODE: UR/0286/65/000/023/0041/0042

AUTHORS: Rogozhin, Yu. V.; Syritskaya, Z. M.; Ushanova, A. V.; Mazurov, M. K.;  
Zadorozhnyy, V. K.; Ignat'yev, O. S.; Goroshchenko, Ya. G.

ORG: none

TITLE: A method for preparing titanium-containing enamels and glassy crystalline materials. Class 32, No. 176663

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 41-42

TOPIC TAGS: titanium, enamel, sphene, perovskite, crystalline matter, specialized coating, ceramic coating

ABSTRACT: This Author Certificate presents a method for preparing titanium-containing enamels and glassy crystalline materials. To broaden the base of raw materials and to improve the physico-chemical properties of enamels and glassy crystalline material, the minerals sphene and perovskite are introduced into the original charge.

SUB CODE: 07, 13/

SUBM DATE: 09Aug62

Card 1/1

UDC: 666.293.5

L 20633-66 EWT(m)/EWP(e) WH/WW

ACC NR: AP6011225

SOURCE CODE: UR/0413/66/000/006/0062/0062

INVENTOR: Aslanova, M. S.; Syritskaya, Z. M.; Feykners, S. Ya.

ORG: none

TITLE: Chemical- and heat-resistant glass. Class 32, No. 179885. [announced by All-Union Scientific Research Institute of Glass Fiber (Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 62

TOPIC TAGS: chemically resistant glass, heat resistant glass, glass fiber

ABSTRACT: An Author Certificate has been issued for chemical- and heat-resistant glass for the manufacture of glass fibers resistant to aluminum phosphate binder. The glass has the following composition:  $P_2O_5$ , 22-32%;  $TiO_2$ , 64-88%;  $SiO_2$ , 1-4%;  $Nb_2O_5$ , not over 2%. In addition to these ingredients the glass contains:  $Cr_2O_3$ , 1-4%;  $WO_3$ , not over 1%. [B0]

SUB CODE: 11/ SUBM DATE: 19Feb65/ ATD PRESS: 4225

Card 1/1

UDC: 666.112.92:546.18'28'78'82'882

L 35922-66 EWT(m)/EWP(e) WW/WH

ACC NR: AP6012132 (A) SOURCE CODE: UR/0413/66/000/007/0051/0051

INVENTOR: Aslanova, M. S.; Syritskaya, Z. M.; Feykners, S. Ya.;  
Zak, A. F.; Khomutov, A. I.

ORG: none

TITLE: Glass. Class 32, No. 180317 /announced by All-Union Glass Fiber  
Research Institute (Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna)

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
no. 7, 1966, 51.

TOPIC TAGS: glass, glass composition, GLASS FIBER, GLASS PROPERTY

ABSTRACT: An Author Certificate has been issued describing the  
composition of glass containing  $P_2O_5$ ,  $SiO_2$ ,  $TiO_2$ ,  $Al_2O_3$ ,  $MgO$ , which  
is intended for the manufacture of glass fiber. To produce a fiber  
with high absorption properties, the following wt. (%) of the above  
components are suggested:  $P_2O_5$ , 40.0—55.0;  $SiO_2$ , 32.0—43.0;  $TiO_2$ ,  
4.0—6.0;  $Al_2O_3$ , 3.0—8.0;  $MgO$ , >1.0; and  $CaO$ , 3.0—5.0. [LD]  
Translation of abstract

SUB CODE: 11/ SUBM DATE: 12Feb65

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CHERNOZUBOV, S.A., inzh.; MOROZOV, N.V., kand. tekhn. nauk; SYRITSKIY, P.I., inzh.

Experimental shop for making thin-walled brick panels. Stroi.  
mat. 5 no. 3:22-23 Mr '59. (MIRA 12:5)  
(Building blocks)